Amendments to the Claims:

This listing of claims replaces all prior versions, and listings, of claims in the application:

Listing of Claims:

1-26. (Cancelled)

27. (Currently Amended) ~~The method of claim 26, further comprising the step of~~ A training method for a power amplifier pre-distorter formed by a Finite Impulse Response (FIR) filter structure comprising an individual look-up table for each filter tap, each look-up table representing a discretized polynomial in a variable representing input signal amplitude, and means for selecting, from each filter tap look-up table, a filter coefficient that depends on the amplitude of a corresponding complex signal value to be multiplied by the filter tap, said training method comprising the steps of:

storing measured unamplified input signal samples and corresponding power amplifier output signal feedback samples;

determining look-up table filter coefficients for each filter tap by separate independent iterative procedures using said stored samples, wherein said iterative procedures are least mean square based, said step of determining comprising:

calculating a refined filter coefficient estimate $T_{qi}(b)$ corresponding to a filter tap with a delay q and a signal amplitude bin b from a previous filter coefficient estimate $T_{qi-1}(b)$ in accordance with the equation:

$$T_{qi}(b) = T_{qi-1}(b) + \mu_q \cdot \frac{1}{N_b} \cdot \sum_{|x_{k-q}| \in M_b} \frac{x_k - y_k}{|x_{k-q}|^2} \cdot x_{k-q}^*$$

where:

μ_q is a predetermined constant associated with filter tap q;

N_b is the number of stored input signal samples that have an amplitude that falls within a predetermined window M_b around the center amplitude of bin b;

x_{k-q} is a stored input signal sample that has a delay q;

y_k is a power amplifier output signal feedback sample corresponding to power amplifier input signal sample x_k; and,

* denotes complex conjugation.

28. (Currently Amended) ~~The method of claim 26, further comprising the step of~~ A training method for a power amplifier pre-distorter formed by a Finite Impulse Response (FIR) filter structure comprising an individual look-up table for each filter tap, each look-up table representing a discretized polynomial in a variable representing input signal amplitude, and means for selecting, from each filter tap look-up table, a filter coefficient that depends on the amplitude of a corresponding complex signal value to be multiplied by the filter tap, said training method comprising the steps of:

storing measured unamplified input signal samples and corresponding power amplifier output signal feedback samples;

determining look-up table filter coefficients for each filter tap by separate independent iterative procedures using said stored samples, wherein said iterative procedures are least mean square based, said step of determining comprising:

calculating a refined filter coefficient estimate $T_{qi}(b)$ corresponding to a filter tap with a delay q and a signal amplitude bin b from a previous filter coefficient estimate $T_{qi-1}(b)$ in accordance with the equation:

$$\begin{cases} T_{qi}(b) = T_{qi-1}(b) + \mu_q \cdot u(b)\dfrac{1}{N_b} \cdot \sum\limits_{|x_{k-q}| \in M_b} (x_k - y_k) \cdot x_{k-q}^* \\ u(b) = \dfrac{1}{\overline{|x_b|}^2} \end{cases}$$

where:

μ_q is a constant associated with filter tap q;

N_b is the number of stored input signal samples that have an amplitude that falls within a predetermined window M_b around the center amplitude $\overline{|x_b|}$ of bin b;

x_{k-q} is a stored input signal sample that has a delay q;

y_k is a power amplifier output signal feedback sample corresponding to input signal sample x_k; and,

* denotes complex conjugation.

29. (Currently Amended) ~~The method of claim 26, further comprising the step of~~ A training method for a power amplifier pre-distorter formed by a Finite Impulse Response (FIR) filter structure comprising an individual look-up table for each filter tap, each look-up table representing a discretized polynomial in a variable representing input signal amplitude, and means for selecting, from each filter tap look-up table, a filter coefficient that depends on the amplitude of a corresponding complex signal value to be multiplied by the filter tap, said training method comprising the steps of:

storing measured unamplified input signal samples and corresponding power amplifier output signal feedback samples;

determining look-up table filter coefficients for each filter tap by separate independent iterative procedures using said stored samples, wherein said iterative procedures are least mean square based, said step of determining comprising:

calculating a refined filter coefficient estimate $T_{qi}(b)$ corresponding to a filter tap with a delay q and a signal amplitude bin b from a previous filter coefficient estimate $T_{qi-1}(b)$ in accordance with the equation:

$$T_{qi}(b) = T_{qi-1}(b) + \mu_q \cdot (x_k - y_k) \cdot \frac{x_{k-q}^*}{|x_{k-q}|^2} : \quad |x_{k-q}| \in M_b$$

where:

μ_q is a constant associated with filter tap q;

x_{k-q} is a stored input signal sample that has that has a delay q and an amplitude that falls within a predetermined window M_b around the center amplitude of bin b;

y_k is a power amplifier output signal feedback sample corresponding to input signal sample x_k; and,

* denotes complex conjugation.

30. (Currently Amended) ~~The method of claim 26, further comprising the step of~~ A training method for a power amplifier pre-distorter formed by a Finite Impulse Response (FIR) filter structure comprising an individual look-up table for each filter tap, each look-up table representing a discretized polynomial in a variable representing input signal amplitude, and means for selecting, from each filter tap look-up table, a filter coefficient that depends on the amplitude of a corresponding complex signal value to be multiplied by the filter tap, said training method comprising the steps of:

storing measured unamplified input signal samples and corresponding power amplifier output signal feedback samples;

determining look-up table filter coefficients for each filter tap by separate independent iterative procedures using said stored samples, wherein said iterative procedures are least mean square based, said step of determining comprising:

calculating a refined filter coefficient estimate $T_{qi}(b)$ corresponding to a filter tap with a delay q and a signal amplitude bin b from a previous filter coefficient estimate $T_{qi-1}(b)$ in accordance with the equation:

$$\begin{cases} T_{qi}(b) = T_{qi-1}(b) + \mu_q \cdot u(b) \cdot (x_k - y_k) \cdot x^*_{k-q} : & |x_{k-q}| \in M_b \\ u(b) = \dfrac{1}{\overline{|x_b|}^2} \end{cases}$$

where:

μ_q is a constant associated with filter tap q;

x_{k-q} is a stored input signal sample that has a delay q and an amplitude that falls within a predetermined window M_b around the center amplitude $\overline{|x_b|}$ of bin b;

x_k is a power amplifier input signal sample that y_{k-q} is a power amplifier output signal feedback sample corresponding to input signal sample x_k; and,

* denotes complex conjugation.

31-32. (Cancelled).

33. (Currently Amended) ~~The pre-distorter of claim 32, further comprising~~ A power amplifier pre-distorter formed by a Finite Impulse Response (FIR) filter structure comprising an individual look-up table for each filter tap, each look-up table representing a discretized polynomial in a variable representing input signal amplitude, and means for selecting, from each filter tap look-up table, a filter coefficient that depends on the amplitude of a corresponding complex signal value to be multiplied by the filter tap, wherein the pre-distorter comprises:

means for storing measured unamplified input signal samples and corresponding power amplifier output signal feedback samples;

means for determining look-up table filter coefficients for each filter tap by separate independent iterative procedures using said stored samples, wherein said iterative procedures are least mean square based, said means for determining comprising:

means for calculating a refined filter coefficient estimate $T_{qi}(b)$ corresponding to a filter tap with a delay q and a signal amplitude bin b from a previous filter coefficient estimate $T_{qi-1}(b)$ in accordance with the equation:

$$T_{qi}(b) = T_{qi-1}(b) + \mu_q \cdot \frac{1}{N_b} \cdot \sum_{|x_{k-q}| \in M_b} \frac{x_k - y_k}{|x_{k-q}|^2} \cdot x_{k-q}^*$$

where:

μ_q is a predetermined constant associated with filter tap q;

N_b is the number of stored input signal samples that have an amplitude that falls within a predetermined window M_b around the center amplitude of bin b;

x_{k-q} is a stored input signal sample that has a delay q;

y_k is a power amplifier output signal feedback sample corresponding to input signal sample x_k; and,

* denotes complex conjugation.

34. (Currently Amended) ~~The pre-distorter of claim 32, further comprising~~ A power amplifier pre-distorter formed by a Finite Impulse Response (FIR) filter structure comprising an individual look-up table for each filter tap, each look-up table representing a discretized polynomial in a variable representing input signal amplitude, and means for selecting, from each filter tap look-up table, a filter coefficient that depends on the amplitude of a corresponding complex signal value to be multiplied by the filter tap, wherein the pre-distorter comprises:

means for storing measured unamplified input signal samples and corresponding power amplifier output signal feedback samples;

means for determining look-up table filter coefficients for each filter tap by separate independent iterative procedures using said stored samples, wherein said iterative procedures are least mean square based, said means for determining comprising:

means for calculating a refined filter coefficient estimate $T_{qi}(b)$ corresponding to a filter tap with a delay q and a signal amplitude bin b from a previous filter coefficient estimate $T_{qi-1}(b)$ in accordance with the equation:

$$\begin{cases} T_{qi}(b) = T_{qi-1}(b) + \mu_q \cdot u(b) \dfrac{1}{N_b} \cdot \displaystyle\sum_{|x_{k-q}| \in M_b} (x_k - y_k) \cdot x^*_{k-q} \\ u(b) = \dfrac{1}{\left|\overline{x_b}\right|^2} \end{cases}$$

where:

μ_q is a constant associated with filter tap q;

N_b is the number of stored input signal samples that have an amplitude that falls within a predetermined window M_b around the center amplitude $\left|\overline{x_b}\right|$ of bin b;

x_{k-q} is a stored input signal sample that has a delay q;

y_k is a power amplifier output signal feedback sample corresponding to input signal sample x_k; and,

* denotes complex conjugation.

35. (Currently Amended) ~~The pre-distorter of claim 32, further comprising~~ A power amplifier pre-distorter formed by a Finite Impulse Response (FIR) filter structure comprising an individual look-up table for each filter tap, each look-up table representing a discretized polynomial in a variable representing input signal amplitude, and means for selecting, from each filter tap look-up table, a filter coefficient that depends on the amplitude of a corresponding complex signal value to be multiplied by the filter tap, wherein the pre-distorter comprises:

means for storing measured unamplified input signal samples and corresponding power amplifier output signal feedback samples;

means for determining look-up table filter coefficients for each filter tap by separate independent iterative procedures using said stored samples, wherein said iterative procedures are least mean square based, said means for determining comprising:

means for calculating a refined filter coefficient estimate $T_{qi}(b)$ corresponding to a filter tap with a delay q and a signal amplitude bin b from a previous filter coefficient estimate $T_{qi-1}(b)$ in accordance with the equation:

$$T_{qi}(b) = T_{qi-1}(b) + \mu_q \cdot (x_k - y_k) \cdot \frac{x_{k-q}^*}{|x_{k-q}|^2} : \quad |x_{k-q}| \in M_b$$

where:

μ_q is a constant associated with filter tap q;

x_{k-q} is a stored input signal sample that has that has a delay q and an amplitude that falls within a predetermined window M_b around the center amplitude of bin b;

y_k is a power amplifier output signal feedback sample corresponding to input signal sample x_k; and,

* denotes complex conjugation.

36. (Currently Amended) ~~The pre-distorter of claim 32, further comprising~~ A power amplifier pre-distorter formed by a Finite Impulse Response (FIR) filter structure comprising an individual look-up table for each filter tap, each look-up table representing a discretized polynomial in a variable representing input signal amplitude, and means for selecting, from each filter tap look-up table, a filter coefficient that depends on the amplitude of a corresponding complex signal value to be multiplied by the filter tap, wherein the pre-distorter comprises:

means for storing measured unamplified input signal samples and corresponding power amplifier output signal feedback samples;

means for determining look-up table filter coefficients for each filter tap by separate independent iterative procedures using said stored samples, wherein said iterative procedures are least mean square based, said means for determining comprising:

means for calculating a refined filter coefficient estimate $T_{qi}(b)$ corresponding to a filter tap with a delay q and a signal amplitude bin b from a previous filter coefficient estimate $T_{qi-1}(b)$ in accordance with the equation:

$$\begin{cases} T_{qi}(b) = T_{qi-1}(b) + \mu_q \cdot u(b) \cdot (x_k - y_k) \cdot x^{*}_{k-q} : & |x_{k-q}| \in M_b \\ u(b) = \dfrac{1}{\overline{|x_b|}^2} \end{cases}$$

where:

μ_q is a constant associated with filter tap q;

x_{k-q} is a stored input signal sample that has a delay q and an amplitude that falls within a predetermined window M_b around the center amplitude $\overline{|x_b|}$ of bin b;

x_k is a power amplifier input signal sample that y_{k-q} is a power amplifier output signal feedback sample corresponding to input signal sample x_k; and,

* denotes complex conjugation.

37-48. (Cancelled).

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